

Chronic Beryllium Disease will probably have little effect on your life. Even so, you should see a doctor regularly to monitor the disease.

- Treatment with a group of drugs called *corticosteroids* (“steroids”), such as *prednisone*, may be advised for those with symptoms of, or breathing tests that show Chronic Beryllium Disease. (These “steroids” are not the same as the ones you hear about athletes using.) These steroids reduce inflammation and are believed to help keep the condition from progressing. Complete cure is rare, but steroids may be effective in controlling the disease. Any decision to use drugs should be made after discussing possible side effects with your doctor.
- Any person with a lung condition, including Chronic Beryllium Disease, may benefit from pneumonia and flu vaccinations and early treatment of respiratory infections.
- If you smoke cigarettes, try to STOP. This is especially important for those with lung disease. Exposure to beryllium may increase a person’s chances of getting lung cancer. It is important to eliminate major additional cancer risks such as smoking.
- If your LPT results are abnormal and your current job exposes you to elevated levels of beryllium in the air, you should seriously consider moving, as a precaution, to a job without significant beryllium exposure until a final diagnosis can be made. You have the right to challenge any medical restrictions placed upon you.

**This fact sheet was prepared for your use in part from information supplied by the Workplace Health Fund. It is NOT meant as a substitute for consulting with your own doctor! However, because Chronic Beryllium Disease is rare, most family doctors and internists have not had the opportunity to treat individuals with Chronic Beryllium Disease. For this reason, you may also wish to consult a lung specialist that your doctor recommends. If you do not have a personal physician, you can request a list of board certified pulmonary doctors from the local medical society, or look for a pulmonary doctor in the yellow pages.**

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# FACT SHEET

## BERYLLIUM AND CHRONIC BERYLLIUM DISEASE

## WHAT IS BERYLLIUM?

- Beryllium is a hard, lightweight metal that is very strong and easy to shape. Beryllium and beryllium compounds have many industrial uses. Beryllium copper alloys and beryllium oxide ceramics are used in the electronic, nuclear and aerospace industries.
- Beryllium parts for nuclear weapons have been manufactured and used at a number of Department of Energy facilities since the 1950s. Workers may have come into contact with beryllium in a number of jobs there over the years.

## HOW DOES SOMEONE GET EXPOSED TO BERYLLIUM?

- Exposure usually happens when a person breathes in beryllium mists, dusts and fumes. Beryllium can then travel to the lungs where it can cause damage. Beryllium related granulomas (non-cancerous tumors or growths) can also develop in other body tissues, but these do not usually result in a loss of function.
- Machinists, welders and operators may have been exposed through direct handling of beryllium and beryllium compounds. Other workers may have been exposed by performing laboratory analyses on beryllium compounds, coming into contact with contaminated equipment, or by working near a beryllium operation.

**It is important for you to try to remember any jobs or processes that might have brought you into contact with beryllium and beryllium compounds. Explain these carefully to any health provider who asks you about your work history.**

## WHAT ARE THE MAJOR HEALTH PROBLEMS BERYLLIUM CAN CAUSE?

- Beryllium disease is caused primarily by breathing air with beryllium mists, dusts, and fumes. Both acute (abrupt, short-term) and chronic (long-term) health problems can occur.
- The acute disease starts soon after exposure and resembles pneumonia or bronchitis. It requires relatively high levels of exposure to occur, and is now quite rare because protective measures to reduce exposure are usually in place.
- The chronic form - Chronic Beryllium Disease (CBD) - takes a long time to develop, usually several years or even decades. It can occur at much lower levels of exposure than the acute form. In Chronic Beryllium Disease, inflammation and scarring of the lungs make it more difficult for the lungs to get oxygen to the bloodstream and body.
- A special type of scarring called granuloma is very typical of this disease. These non-cancerous growths look like scars or tumors present in another disease called sarcoidosis. A work history and additional tests will help to make the correct diagnosis.
- Most people exposed to beryllium will NOT get the disease. With the amount of dusts we know were present in the workplace, fewer than three percent will probably develop disease.
- Chronic Beryllium Disease can be mild or severe. For some, it can be a relatively minor condition, while for others it can become a very serious, disabling disease.
- As with many workplace hazards, higher exposures (doses) to beryllium cause more people to get sick. However, in a few people even very small amounts of beryllium can pose a problem. This is because beryllium can cause some people to become sensitive to the metal. Their body reacts and begins the

disease process even when exposed to only small amounts. The reason for this happening is not well understood.

- Beryllium is identified by the International Agency for Research on Cancer as a cancer causing substance. In humans, one study found beryllium caused a small but significant increase in the amount of lung cancers. However, other researchers have pointed out flaws in that study.

## WHAT ARE THE SYMPTOMS OF CHRONIC BERYLLIUM DISEASE?

- Symptoms of Chronic Beryllium Disease include:
  - Shortness of Breath, especially with activity
  - Cough
  - Chest Pain
  - Fatigue
  - Weight Loss
  - Loss of Appetite

It is important to note that NOT all individuals with these symptoms will have CBD. These can be symptoms of other conditions which may require medical attention as well. Not all people with CBD have all these symptoms.

## WHAT WILL HAPPEN IF YOU HAVE CHRONIC BERYLLIUM DISEASE?

- Today, Chronic Beryllium Disease is not considered a fatal condition. For a few people, however, it can become serious enough to cause disability. Most people with the disease are able to control the symptoms with prescription drugs and regular medical treatment, so that they can live full and productive lives.
- Some people can be diagnosed with the disease but have no symptoms. If you do not have any symptoms, you probably will not require treatment and

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## DIAGNOSTIC WORK-UP FOR CHRONIC BERYLLIUM DISEASE

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## WHAT CAN I EXPECT IF I GET THE ADDITIONAL MEDICAL PROCEDURES NEEDED TO CONFIRM A DIAGNOSIS?

Based on results of your screening examination, you may be offered additional medical tests through a special Department of Labor program. These tests will help to determine whether you have a health problem, and if it is Chronic Beryllium Disease.

A specialist in lung disease (pulmonologist) will ask you questions about your health and perform a comprehensive examination, with special emphasis on your lungs, where Chronic Beryllium Disease is found. The function of your lungs will be tested by a specialized version of spirometry, the test where you blow into a tube. If the degree of change to your lungs is still uncertain, you may be offered a high-resolution CT scan or other imaging study to provide a picture of your lungs.

One procedure you may be offered is called a *bronchoscopy*, which allows the doctor to look directly into your lungs with a fiberoptic device. The doctor passes a flexible tube through your nose into your throat and windpipes, which, using the fiberoptic “eye,” inspects the lungs. Some cells (lymphocytes) will be washed out and later tested to see if they are sensitized to beryllium. The doctor can also take small samples of tissue; these are examined at a laboratory later.

Before the bronchoscopy, you will be given a local anesthetic to numb both your nose and throat. During the procedure you may be given a relaxant intravenously to keep you more comfortable. The bronchoscopy tube will be passed through your nose into your throat, and then gradually lowered to explore your windpipes and lungs. The test takes about 30-60 minutes. Most people tolerate it well.

When you go for the procedure, you will have a chance to talk with the doctor before and after the procedure and again when the laboratory results are back. Please feel free to ask the doctor any questions you have about the procedure and the results.

## WHAT IF THE DIAGNOSTIC TESTS SHOW THAT I HAVE CHRONIC BERYLLIUM DISEASE?

- Today, Chronic Beryllium Disease is not considered a fatal condition. For a few people, however, it can become serious enough to cause disability. Most people with the disease are able to control the symptoms with prescription drugs and regular medical treatment so that they can live full and productive lives.
- Some people can be diagnosed with the disease but have no symptoms. If you do not have any symptoms, you probably will not require treatment and Chronic Beryllium Disease will probably have little effect on your life. Even so, you should see a doctor regularly to monitor the disease.
- Treatment with a group of drugs called *corticosteroids* (“steroids”), such as *prednisone*, may be advised for those with symptoms of, or breathing tests that show Chronic Beryllium Disease. (These “steroids” are not the same as the ones you hear about athletes using.) These steroids reduce inflammation and are believed to help keep the condition from progressing. Complete cure is rare, but steroids may be effective in controlling the disease. Any decision to use drugs should be made after discussing possible side effects with your doctor.
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pneumonia and flu vaccinations and early treatment of respiratory infections.

- If you smoke cigarettes, try to STOP. This is especially important for those with lung disease. Exposure to beryllium may increase a person’s chances of getting lung cancer. It is important to eliminate major additional cancer risks such as smoking.
- If your LPT results are abnormal and your current job exposes you to elevated levels of beryllium in the air, you should seriously consider moving, as a precaution, to a job without significant beryllium exposure until a final diagnosis can be made. You have the right to challenge any medical restrictions placed upon you.

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## THE LYMPHOCYTE PROLIFERATION TEST

## WHAT IS THE LYMPHOCYTE PROLIFERATION TEST?

The Lymphocyte Proliferation Test (LPT) is a laboratory test that examines how a type of disease-fighting blood cell in our bodies — called lymphocytes — reacts to beryllium. It is performed on blood drawn from your arm. If the LPT suggests you may have Chronic Beryllium Disease, you will receive information about additional testing that can be done through a special Department of Labor program.

## WHAT DO THE RESULTS OF MY TEST MEAN?

If your cells did not react to beryllium very strongly, then your test is called “normal”. It is highly unlikely that you are currently sensitized to beryllium or have Chronic Beryllium Disease. Nevertheless, if you have had prior beryllium exposure you may still become beryllium sensitized in the future. It can take years to develop sensitization in some individuals. Therefore, follow-up tests will be offered to you.

If your cells reacted strongly to beryllium, then the LPT is called “abnormal” and the first thing we need to do is re-test your blood to confirm our results. Medical tests are sometimes difficult to interpret, and so medical doctors like to run a second test to confirm that no error was made.

If both of your tests are abnormal, it might simply mean that you have been exposed to beryllium and your body’s lymphocytes react strongly to beryllium. The tests may indicate something more, however:

- An abnormal LPT may mean that you are more likely than others with similar exposure to develop Chronic Beryllium Disease in the future,

*or*

- An abnormal LPT, for some, may be an early sign of Chronic Beryllium Disease (CBD).

**An abnormal LPT alone does NOT mean that you have Chronic Beryllium Disease.** It does not mean that you are sick or will get sick. It does mean that you will be asked to undergo further testing by pulmonologists who are experienced in diagnosing Chronic Beryllium Disease. These tests and your consultations with pulmonologists will be paid for by the Department of Labor. You do not have to have any additional tests if you don’t want them.

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If your LPT is abnormal, you should discuss it with your personal physician, especially if you are being treated for another health condition. Upon your request, the results of the LPT, as well as your other examinations, will be sent to the doctors you are seeing. Your doctors can call the doctors performing these tests if they have any technical questions about the testing or the results.

The symptoms of chronic beryllium disease include: shortness of breath (especially with activity), cough, chest pain, fatigue, weight loss, and loss of appetite. If your LPT is normal, but you begin to have any of these symptoms in the future, you may request another test by calling one of the toll-free telephone numbers listed on the other side of this page.

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